

FIG. 1A

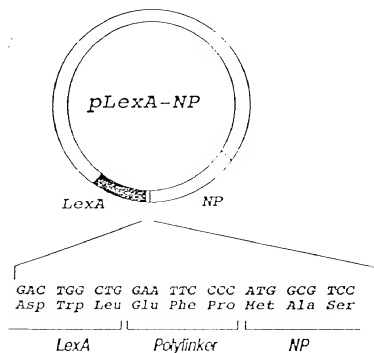


FIG. 1B

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                20                      40                      60
CTAATTTCAG CGGTGGCACC GGGATCGGTT GCCTTGAGGC TGAAATATGA CCACCCCAAG
                                     M T T P G>

                80                      100                      120
AAAAGAGAAG TTTGCGCTGA AAAGTTACAA GAACAAATTT CTGAATCCCG ATGAGATGGG
F E N F R L K S Y K N K S L N P D E M R>

                140                      160                      180
CAGGAGGAGG GAGGAAGAAG GACTGCAGTT ACGAAAGCAG AAAAGAGAAG AGCAGTTATT
F R R E E E G L Q L R K Q K R E E Q L F>

                200                      220                      240
CAAGCGGAGA AATGTTGCTA CAGCAGAAGA AGAAACAGAA GAAGAAGTTA TGTCAGATGG
K R R N V A T A E E E T E E E V M S D G>

                260                      280                      300
AGGCTTTTCA GAGGCTCAGA TTAGTAACAT GGAGATGGCA CCAGTGGTG TCATCACTTC
G F H E A Q I S N M E M A P G G V I T S>

                320                      340                      360
TGACATGATT GAGATGATAT TTTCCTCAAG CCCAGAGCAA CAGCTTTTCA CAACACAGAA
D M I E M I F S K S P E Q Q L S A T Q F>

                380                      400                      420
ATTGAGGAAG CTGCTTTCAA AAGAACCTAA CCCTCCTATT GATGAAGTTA TCAGCACACC
F R K L L S K E P N P P I D E V I S T P>

                440                      460                      480
AGGAGTAGTG GCCAGGTTTG TGGAGTTTCT CAAACGAAA GAGAATTGTT CACTGCAGTT
G V V A R F V E F L K R F E N C S L Q F>

                500                      520                      540
TGAATCAGCT TGGGTACTGA CAAATATTGC TTCAGGAAAT TCTCTTCAGA CCCGAATTGT
E S A W V L T N I A S G E S L Q T R I V>

                560                      580                      600
GATTGAGTCA AGAGCTGTGC CCATCTTCAT AGAGTTGCTC AGCTCAGAGT TTGAAGATGT
I Q A R A V P I F I E L L S S E F E D V>

                620                      640                      660
CCAGGAACAG GCAGCTGGG CTCCTGACAA CATTGCTGCA GATAGTACCA TGTGCAGGGA
Q E Q A V W A L G N I A G D S T M C R D>

                680                      700                      720
CTATGCTTGA GACTGCAATA TCCTTCGCCC TCCTTTGGAG TTATTTTCAA AGCAAAACCG
Y V L D C N I L P P L L C L F S K Q N F>

                740                      760                      780
CCTGACCATC ACCCGAATG CAGTATGGCG TTGTCTTATT CTCTGTAGAG GGAAAGATCC
L T M T R N A V W A L L F L C E G E S L>

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FIG. 2A

800	820	840
ACCTCCAGAA TTTCGCAAAGG TTCTTCCATG TCTGAATGTG CTTTCCCTTCT TGTCTTTTCT		
P P E F A K V S P C L N V L S W L L F V		
860	880	900
CAGTGACACT GATGTACTGG CTGATGCCTG CTGGGCCCTC TCATATCTAT CAGATGGAC		
S D T D V L A D A C W A L S Y L S D G F		
920	940	960
CAATGATAAA ATTCAAGCGG TCATCGATGC GGGAGTATGT AGGAGACTTG TGGAACTGCT		
N D K I Q A V I D A G V C R R L V E L L		
980	1000	1020
GATGCATAAT GATTATAAAG TGGTTTCTCC TGTCTTCTAC GCTGTGGGAA ACATTGTGAC		
M H N D Y K V V S P A L F A V G N I V T		
1040	1060	1080
AGGGGATGAT ATTCAGACAC AGGTAATTCT GAATTGCTCA GCTCTGCAGA GTTTATGCA		
G D D I Q T Q V I L N C S A L Q S L L H		
1100	1120	1140
TTTGCTCACT AGCCCAAAGG AATCTATCAA AAAGGAAGCA TGTTCGACGA TATCTAATAT		
L L S S P K E S I K K E A C W T I S N L		
1160	1180	1200
TACAGCTGGA AATAGGGCAC AGATCCAGAC TGTGATAGAT GCCAACATTT TCCGAGCCCT		
T A G N R A Q I Q T V I D A N I F P A L		
1220	1240	1260
CATTAGTATT TTACAAACTG CTGAATTTCG GACAGAGAAA GAAGCACTT GGGCATCAC		
I S I L Q T A E F R T R K E A A W A I T		
1280	1300	1320
AAATGCAACT TCTGGAGGAT CAGCTGAACA GATCAAGTAC CTAGTAAGAC TGGCTTGAT		
N A T S G G S A E Q I K Y L V E L G C I		
1340	1360	1380
CAAGCGGCTC TGTGATCTTC TCACGGTCAT GGACTGTATG ATTGTACAGG TTGGCCCTAA		
K P L C D L L T V M D S E I V Q V A L R		
1400	1420	1440
TGGCTTGGAA AATATCTTGA GGCTTGGAGA ACAGGAAGCG AAAAGGAAGG GACATGGCAT		
G L E N I L R L G E Q E A K F N G T G I		
1460	1480	1500
TAAACCTTAC TGTGCTTGA TGAAGAAGC TTATGGTCTG GATAAAATTG AGTTCTTACA		
N P Y C A L I E E A Y G L D F I E F L Q		
1520	1540	1560
GAGTCATGAA AACCAGGAGA TCTACCAAAA GGCCTTTGAT CTTATTGAGC ATTACTTG		
S H U N C E I Y Q E A F D L I E P Y I G		
1580	1600	1620
GAAGGAGGAG GAAGGAGGAG GATTTGAGG GCGCTTGG CTTAATTTG AAGGATTAAT		
T E I I D S E I A F Q V I E M T V A Y I		

FIG. 2B

1640 1660 1680
 CTTCCACAG TGTAGGCTC CTATGZAGC TTTCVAGCTT TGAAGCAATA CTCTGTTTTC
 F Q Q C E A P M E G F Q L
 1700 1720 1740
 ACGTACCTGT CCTCAGATCA GGCTACCCAG TCGAGTCTTC TTGTGGAGCC CACAGTCTTC
 1760 1780 1800
 ATGAGAGTAA CTTCTCAAAT GTTTCCATA ATACTGTTTG CGTCATTTG CTTCCTTTCG
 1820 1840 1860
 GCACCTGCTC TCTTACACAC ATCTGAAAA CCTCCGGCTC TCTGTGGTG GATACCTTC
 1880 1900 1920
 TAATAAAGG GTAACAGAA CGGCCCACTC TCTTTTACGG AAAATCCCT AGCCTTTTGA
 1940 1960 1980
 GATCCGACT TACMTTACAG TTATGGGAAT ATACACATAT TAATGTGGCT CCCITTTTCT
 2000 2020 2040
 TGTGGGGGAA TAAAGAGGA CTCCTCTCA TTCCCTTTAA CATGGGGGAA AAACTTGACA
 2060 2080 2100
 TTAAGAGATG AGACTAAATC TTTATCTTGA ATTTTACACA ACTACTTACG ACAAGGGAGA
 2120 2140 2160
 TGTTTAGACC TGTGGTATA CTTCAGAGTA CTTTTCATGA GTTCTTCAC AGTGAACCTT
 2180 2200 2220
 TGGATTACCT GGTGGCTTTT TCTAGCCAGA TTGCATTAT CTTTACTGAG ATTGGATGCT
 2240 2260 2280
 TTTCTTCTCT CTATTGGAG CATTTCTTAC ATATTAAAGT TAAAGCATCC ACTCCCTTAC
 2300 2320 2340
 CTTACGCTT CAGTGAATAT GCTTTCTAGT TGTACGAAT GCTGAAGAAT TAACAATTG
 2360 2380 2400
 ACTCCTAAAT GTGATATG TGGTAAGAG CAGGGCAGAT TTAATTGTT CGCTTTTCT
 2420 2440 2460
 TCTCTTTGTT CTGGGACAT TTAATTGTT CGCTTTTCT TCTCTTTGTT CTTTCTGAAAT
 2480 2500 2520
 ACTTAGTAAT CGAAATAT ATCTGTAAT TTAATGAAA AAATGAGGA CGAAATATAC
 2540 2560 2580
 CTTCAATTT TCCCAATGC AATGATGTA ATAGAGCT CGTTTCTGC ATTAATATTA
 2600 2620 2640
 AATGATGTA ATAGAGCT CGTTTCTGC ATTAATATTA
 2660 2680 2700
 AATGATGTA ATAGAGCT CGTTTCTGC ATTAATATTA

FIG. 2C

2720	2740	2760
TTTCTTAGGT GCAGCTCGAT TCTAATCTTT TCATGCTGUA CACGATTCTT TTAATCGATA		
2780	2800	2820
GCATCCITAT CTGAAAGAAA TAACCATCTT CTCAACATGA CCTGCTTAAC CCAAAATAGA		
2840	2860	2880
ACAGTGATCT TATAACCTCA TTGTTTCCTA ATCTATTTTA TTTCATCTCC TGCTAGTACT		
2900	2920	2940
GTGCCGCTTC CCCCTCCCC CACACAAAAT AAAAACAGTA TCTCGCTTCT GGCTCATTTT		

FIG. 2D

Pol/NP:

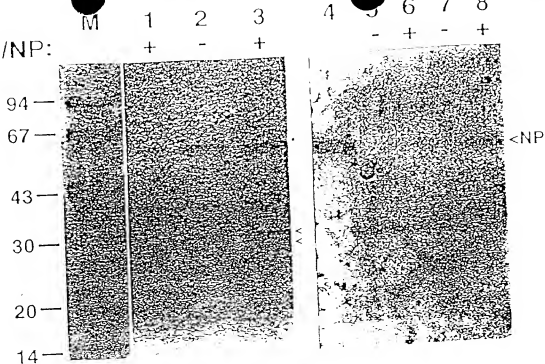


FIG. 4

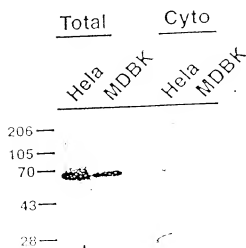


FIG. 5

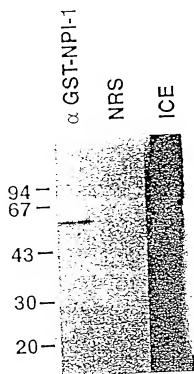


FIG. 6

20 40 60
GGAGGCACCG AAGGGCAGCG CCGAGTCGGA GGGGGGGAAG ATTGACGCCA GTAAGAACGA
80 100 120
GGAGGATGAA GGCCATTCAA ACTCTCTCCC ACGACACTCT GAAGCAGCGA CCGCACAGCG
140 160
GGAAGAATGG AAAATGTTTA TAGGAGGCCT TAGCTGGGAC ACTACAAAGA

FIG. 7

20 40 60
 GAGGTCAATG TGGAGCTGAG GAAAGCTAAG AAGGATGAC AGATNCTGAA GAGGGAATG
 E V N V R L F K A F F D D Q M L F F E N
 80 100 120
 GTAAGCTCAT TTCCTGATGA TGCTACTTCT CCGCTGCAGG AAAACCGCAA CAACGAGG
 V S S F P D D A T S P L Q E N R N N Q G
 140 160 180
 ACTGTAAATT GGTCTGTTGA TGACATTGTC AAAGGCATAA ATAGCAGCAA TGTGGAAAT
 T V N W S V D D I V K G I N S S N V E N
 200 220 240
 CAGCTCCAAG CTACTCAAGC TGCCAGGAAA CTACTTTCCA GAGAAAAACA GCCCCCCATA
 Q L Q A T Q A A R K L L S R E K Q P P I
 260 280 300
 GACAACATAA TCCGGGCTGG TTTGATTCCG AAATTGTGT CCTTCTTGGG CAGAACTGAT
 D N I I R A G L I P K F V S F L G R T D
 320 340 360
 TGTAGTCCCA TTCAGTTTGA ATCTGCTTGG GCATCTACTA ACATTGCTTC TGCGAATTA
 C S P I Q F E S A W A L T N I A S G T S
 380 400 420
 GAACAAACCA AGGCTGTGGT AGATGGAGGT GCCATCCCAG CATTCAATTC TCTGTTGGCA
 E Q T K A V V D G G A I P A F I S L L A
 440 460 480
 TCTCCCCATG CTCACATCAG TGAACAAGCT GTCTGGGCTC TAGGAAACAT TGCAGGTGAT
 S P H A H I S E Q A V W A L G N I A G D
 500 520 540
 GGCCTAGTGT TCCGAGACTT GGTATTAAAG TACGTTGCAG TTGACCCACT GTTGCTCTTC
 G S V F P D L V I K Y G A V D P L H A L
 560 580 600
 CTTGCAGTTC CTGATATGTC ATCTTTAGCA TGTGGCTACT TACGTAATCT TACCTGACA
 I A V P D M S S L A C G Y L R N L T W T
 620 640 660
 CTTTCTAATC TTTCGGGAA CAAGAATCCT GCACCCCGAA TAGATGCTGT TGAGCAGATT
 L S N L C R N E R P A P P I D A V E Q I
 680 700 720
 CTTCTACCT TAGTTCGGCT CCTGCATCAT GATGATCCAG AAGTGTIAGC AGATACCTTC
 L P T L V F L L H H D D F E V L A D T C
 740 760 780
 TGGGGTATTT CTACCTTAC TGATGCTCC AATGAGGAA TTGCAATGCT GGTGAAGACA
 W A I C Y L T D G P H E F I Q M V V K T

FIG. 8A

800 840 880
 GGAGTTGTC CCCAAGTCTT GAGGTTCTA GAGGTTCTG AATGGCCAT TGTAGCTCT
 G V V P Q L V E L L G A S E L P I V T I
 860 900 940
 GGCCTAAGAG CCATAGGGAA TATTGTCCT GTTAAGATG AACAGACTCA GATTGTATCT
 A L R A I G N I V T G T D E C T Q V V I
 920 960 1000
 GATGCAAGAG CACTGCGCT CTTTCCAGC CTGCTACCA ACCCAAAAC TAACATTCAG
 D A G A L A V F P S L L T N P K T N I Q
 980 1020 1060
 AAGGAAGCTA CGTGGACAAT GTCAAACATC ACAGCCGCC GCCAGGAACA GATACGCAA
 K E A T W T M S N I T A G R Q D Q I Q Q
 1040 1080 1120
 GTTGTAAGAT ATGGATTAGT CCCATTCTCT GTCACTGCTC TCTCAAGGC AGATTCTTAG
 V V N H G L V P F L V S V L S K A D F K
 1100 1140 1180
 ACACAAAAGG AAGCTGTGTG GGCCTTACCC AACTATACCA GTGGTGGAAAC AGTGTGACAG
 T Q K E A V W A V T N Y T S G G T V E Q
 1160 1200 1240
 ATTTGTGTACC TTGTCTACTG TGGCATAATA GAACCGTTGA TGAACCTCTT AACTGCAAAA
 I V Y L V H C G I I E P L M N L L T A F
 1220 1260 1300
 GATACCAAGA TTATTCTTGT TATCTGGAT GCATTCTCAA ATATCTTTCA CGCTCTTAGT
 D T K I I L V I L D A I S N I F Q A A E
 1280 1320 1360
 AACTAGAGT: AACTAGAGT CCCGTCTTCA CAGATTCAAG AACAAAGGAA AAGACAGTAC
 K L G E T S C P S S Q I Q E Q S R E Q Y
 1340 1380 1420
 AGAAATGAGG CGTCCGAGGC GTCCGAGAAT AGAGAAACTT AGTATAATGA TTGAAGAATG
 F N E A S E A S Q N K E T
 1400 1440 1480
 TUGAGGCTTA GACAAAATTG AAGCTCTACA AAACCATGAA AATGAGTCTG TGTATAGCC
 1460 1500 1540
 TTCGTTAAGC TTAATTGAGA AGTATTCTC TGTAGAGGAA GAGGAAGATC AAACGCTAT
 1520 1560 1600
 ACCAGAAACT ACCTCTTAGG GCTACACTTT CAAGTTTCAG GATGGGCTTC GTGGAGCTT
 1580 1620 1660
 TAACTTTTAA ATGATCTAG TGGAGATATA ATTGTTGAG TTTGATCTTT GATATTTT
 1640 1680 1720
 TAACTTTTAA ATGATCTAG TGGAGATATA ATTGTTGAG TTTGATCTTT GATATTTT

FIG. 8B

1760 1770 1780
ACGTCGAAAC TATACCTTGAAC CAGTTCCAAC TGTACATACA TAT TGTATACA ACG TTGTCCT
1760 1780 1800
CTGACTACCT TTCTAATTG TATGTGGAAT TTCCTATCTT GAGGATCCG CTAAATAAAC
1820
ATTCAGGACC ACCCTTTTCT TGACTTC

FIG. 8C

20 40 60
 GGG GAGCTA GAGGAGATTG GAGTGGTAA GAGGAGCTGA GAGCTGCTTA AATGTAAGGA
 80 100 120
 ACTTGTCTTCT TCAAGCTCTT CTGGCAGTGA TTCTGACAGT GAGGTTGACA AAAAGTTAAG
 140 160 180
 CAGGAAAAAG CAAGTTGCTC CAGAAAAACC TGTAAGAGAA CAAAAGACAG GTGAGACTTC
 200 220 240
 GAGAGCCCTG TCATCTTCTA AACAGAGCAG CAGCAGCAGA GATGATAACA TGTTCAGAT
 TGGGAAAAAG AGGTCAGTT

FIG. 9

20 40 60
 TCTGCACTGT GCGTTTGAGC ATCGGTGAGA AGTCAGCAT GAGTGCATCC CTCAGGCCAT
 80 100 120
 TCTGCACTGT GAGTGTCTGT GCGGTGAGA GCGGTGAGA GAGTGTCTGT
 140 160 180
 CTTGSCACA CTGCAAGAGC TCGAGCAAT TCTGCGGAG GGTGCTGAC TGGTGATGTG
 200 220
 TCACACTCG GAGTGGCTT TTCAGATCAG CAAGGAATAT G

FIG. 10

20 40 60
 ATTTGTAAAC CCCGGAGCGA GGTTCGTGCTT ACCCGAGGCC GCTGCTGTGC GGAGACCCCC
 80 100 120
 GGTGGAAGCC ACCGTCTATCA TGTCTGACCA GGAGGCAAAA CCTTCAACTG AGGACTGGG
 140 160 180
 GGATAAGAAG GAAGGTGAAT ATATTAACT CAAAGTCATT GGACAGGATA GCAGTGAGAT
 200 220 240
 TCACCTTCAA GTGAAAATGA CAACACATCT CAAGAACTC AAAGAATCAT ACTGTCAAAG
 260 280 300
 ACAGGGTGT CCAATGAATT CACTCAGGT TCTCTTGAAG GGTGAGAGAA TTGCTGATAA
 320 340 360
 TCATACTCCA AAAGAAGTGG GAATCGAGGA AGAAGTTGG ATTGAAGTTT ATCAGGAACA
 AACGGGGGT CA

FIG. 11

1441 GTAGCCATACCTAATAGACCTCCTGATGCTGTACTTACAGATACCACCTCTCTAATCAG30TGCTTTGTACCGCCTCAG 1120
V A I I N R P P D A V L T D T T C L N A A L Y R L S 507

1521 TGGAGACCGGAATCCCTTACACATTGATCCTAACTTTGCTAGTCTAGCAGGTTTGTGACAGCCCATATTACATGGATTAT 1400
G D K N P L H I D P N F A S L A G F D K F I L H G L 523

1601 GTACATTTGGATTTTCTGCCAGGCGTCTGTTACAGCAGTTTGCAGATAATGATGTGCAAGATTCAAGCCACTTAAGGCT 1660
C T F G F I S A R R V L Q Q F A D N D V S R F K A V K A 560

1681 COTTTTGCAAAACAGTATATCCAGGACAACTCTACAACTGAGATGTGGAAGGAAGGAACAGAAATTCATTTCACAAAC 1760
R F A K F V V Y P G Q T L Q T E M W K E G N R I H F Q T 587

1761 CAAGTGCAAGAACTTGGAGACATTGTCATTCAAAATGCATATGTGGATCTTGCAACCAACATCTGGTACTTCAGCTAAGA 1840
K V Q E T G D I V I S N A Y V D L A P T S G T S A K 613

1841 CACCCTCTGAGGCGGGAAGCTTCAGAGTACCTTTGTATTTGAGGAATAGGACGCCGCCCTAAAGGATATTGGGCGCTGAG 1920
T P S E G I G K L Q S T F V F E E I G R R L K D I G P E 640

1941 GTGGTGAAGAAAGTAAATGCTGTATTTGAGTGGCATATAACCAAGGGCGGAATATTGGGGCTAAGTGGACTATTGACCT 2000
V V K K V N A V F E W H I T K G G N I G A K W T I D L 667

2001 GAAAAGTGTCTGGAAGTGTACCAAGGCCCTGCAAAAGGTGCTGTGATACAACATCATACTTTTCAGATGAAGATT 2080
K S G S G K V Y Q G P A K G A A D T T I I L S D E D 693

2081 TCATGGAAGTGTCTGCGGCAAGCTTGACCTCAGAAGGCATTTCTTTAGTGGCAGGCTGANGGCCAGAGGGGAACATCATG 2160
F M E V V L G K L D P Q K A F F S G R L K A R G N I M 720

2161 CTGAGCCAGAAACTTCAGATGATTCTTTAAAGACTACGCCAAGCTCTGAAGGCGACACTACACTATTAATAAAAAATGGAAT 2240
L S Q K L Q M I L K D Y A K L 735

2241 CATTAATACTCTCTTCACCCAAATATGCTTGATTTATTCTGCAAAAGTGATTAGAACTAAGATGCAGGGGAAATTGCTTA 2320

2340 ACATTTTCAGATATCAGATAACTGCAGATTTTCAATTTTCTACTAATTTTTCATGTATCATTATTTTACAAGGAACATA 2400

2401 TATAGCTAGCACATAATATCTTCTGTTCTTAGATCTGTATCTTCATATAAAAAATTTTGCCCAAGTCTGTTTCC 2480

2480 TTAGAATTTGTATGACCATGATAAGTTGAAGGAAATTAATCAATTAAGGCGCTTTGATACCTTTAAAAA 2560

AAAAAAAAAA

FIG. 12B

Kb

9.5

7.5

4.4

2.37

1.35

0.24

FIG. 13

09/444994

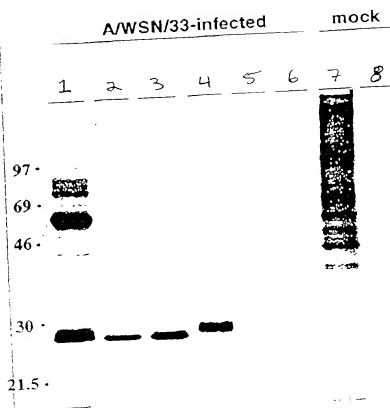


FIG. 14

08/444994

PANEL B

A/turkey/Oregon/71

α- GST-
 T NS1 K5 NI GST

PANEL A

A/duck/Alberta/76

α- GST-
 T NS1 K5 NI GST

NS1 →

M1
 NS1

FIG. 15A

PANEL C PANEL D PANEL E

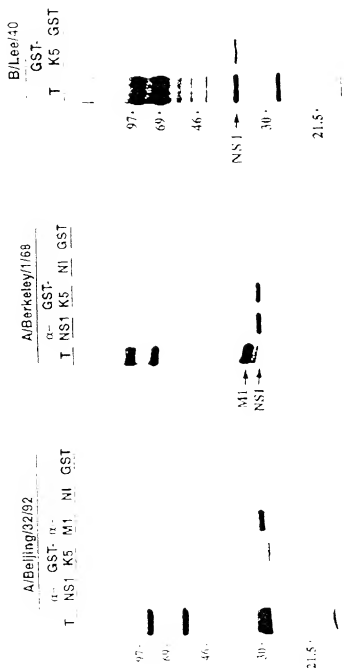


FIG. 15B